LANGUAGE CIRCLE: Journal of Language and Literature, 15(2) April 2021. p-ISSN 1858-0165
Available online at http://journal.unnes.ac.id e-ISSN 2460-853X

Gender Bias in Translation Using Google Translate: Problems and Solution

Tira Nur Fitria[1]
tiranurfitria@gmail.com

[1]**Institut Teknologi Bisnis AAS Indonesia**

Abstract

This study discusses gender bias in terms of language especially from Indonesian into English translation by using Google Translate. This research is descriptive qualitative research. The result shows that most likely every language has gender-biased sides, including English because the type of society in the reality of life is more represented by men and women. In Google translate, the unequal differences between men and women translated into google translate causes the system to be considered biased and sexist towards gender. Whereas in fact, nowadays all genders can have various activities and jobs. Indonesian is also a gender-neutral language. When google translates to change into English, the sentence becomes gendered. The Indonesian language in this case seems to have been saved from being sexist because it does not associate a particular profession or activity with any gender. Unlike English, which adjusts personal pronouns based on gender. Google Translate is not always accurate, especially when translating from English to other languages. That is where Google Translate tends to go astray. The problem is that many languages have gender-based words, whereas English does not. But some words, like profession or occupation, can be masculine or feminine depending on the subject of the sentence, by assigning gender to certain adjectives and words that describe them. Equality in gender and race has been very difficult to achieve in machine technology situations because these systems are trained on existing content, and are not demographically representative. Google decided to make changes. It is important to adapt and build technology that can better serve humans. What may seem like small changes to everyday life are big steps towards gender equality. The way people speak their respective languages is one of the strongest ways of gender discrimination.

Keywords: gender bias, Google Translate, neutral, feminine, masculine

INTRODUCTION

Gender bias has been a research topic for a long time, but much of the recent research on gender bias is from a social science viewpoint. (Chen et al., 2015, p. 654). Bias is an inclination or prejudice for or against one thing or person (Stevenson & Waite, 2011, p. 130). While, gender is the status of being male or female, in cultural or social settings in particular. (Stevenson & Waite, 2011, p. 592). While, 'gender bias' is a preference or discrimination against one sex over another (Behera, 2015, p. 10). In certain cases, in any area, bias may be conscious and unconscious and manifest. The study of gender bias also can be discussed in the field of translation.

Translation activities are essentially decision-making activities (Fitria, 2018). Before deciding, it is not uncommon for translators to encounter various problems, both problems in word selection, cultural gaps between the Source Language (SL) and the Target Language (TL), different language structures, and so on. These obstacles need to be resolved because the translators' decisions will greatly affect the quality of the translation. Words that contain gender bias are one of the things that need attention for practitioners and translation missions. This is because not all cultures use language as a means of communicating gender (Zaman, 2019). The study of gender in this transcultural understanding in translation analyzes the appropriate place between men and women at the social level.

The capacity of the translator cannot have to match the grammar pattern (Palupi, 2019). like

many we have encountered sentences that are translated by machine translation, the translation results are somewhat different in language. The results of the translation look confusing or confuse the language. Even when we translate between languages, without using a reading, the translation results will have different meanings.

There are some previous studies related to bias gender and Google Translate. First, Zaman (2019) explores the expression of the gender inequality of the pronoun "dia (Indonesian language pronoun)" in the localization online resources of the android play store, which does not yet apply to the absolute gender of either man or woman. The findings found that negative meanings were less than positive for males. For women, the negative sense is more than just a positive meaning. A study conducted by Prates et al. (2020) presented evidence that gender differences and a heavy inclination towards male defaults can be seen by statistical translation methods such as Google Translate. Our findings seem to suggest that this pattern continues beyond the boundaries of the office, with a significant difference in the proportion of female pronouns according to the adjectives used to characterize an individual. Stanovsky et al., 2019) conducted a study aiming to define the analysis of gender inequality in machine translation (MT). Create an automated gender bias appraisal framework focused on morphological analysis for eight target languages with grammatical gender (e.g., the use of female inflection for the word "doctor"). Our studies show that four common industrial MT systems and two recent state-of-the-art academic MT models are significantly susceptible to gender-biased translation errors for all tested target languages. Farkas and Németh (2020) presents a systematic analysis of gender inequality with Google Translate in machine translation. the outcome illustrates how the gender of the converted pronouns is influenced by extending sentences of adjectives relating to professions. We observed prejudice against both genders as a consequence, but discriminatory consequences against women are far more common. Translations are closer than quantitative occupational figures to our understanding of professions. Finally, professions have a larger influence than adjectives on translation. Fifth, research entitled "Gender Bias in Machine Translation: Improving Gendered Disambiguation of Pronouns Using Context-Aware Translation" is written by (Xu, 2019). In the context of disambiguating genderless pronouns to gendered ones, the thesis explores gender inequality in computer translation. Turkish uses the genderless pronoun 'o', for instance, which can be translated into 'he' or 'she'. We claim that context-aware translation is a potential way of optimizing this disambiguation, a form of machine learning model that incorporates more context from the text than current models. To disambiguate a genderless pronoun into a gendered one, the study often quantifies how gender-biased one translation model is relative to another through introducing a translation model in a classification setting.

The concept of gender inequality in machine translation can be tested by using an automatic translation method to map sentences built-in gender-neutral languages to English. (Prates et al., 2019). Google Translate directly translates word by word that we type in the box provided, and automatically the translation of the desired language comes out (Wulansari, 2020).

Some languages in this world such as German, Arabic, and French have gender differences in their internal structural systems. In particular, the way languages handle gender varies, and these differences have previously caused Google Translate to make assumptions and provide potentially inaccurate translations. Google Translate will also offer gender-specific translations for many languages to decrease gender disparity in its translations. Previously, with words that may have a feminine or masculine form, Google Translate only showed one translation. Translations would have a masculine bias for terms like "strong" or "doctor" while "beautiful" and "nurse" will have a feminine bias. Google Translate can also show feminine and male word translations of a particular language so that users can select which one is better for the situation at hand.

Gender-specific translations are currently only available for translating single words into Romance languages from English, such as French, Italian, Portuguese, or Spanish. The only language mix that offers sentence translations is Turkish to English. Google provides an example, where if we type "o beer Doktor" in Turkish it will appear the word "she (woman) is a doctor" (feminine) and "she (man) is a doctor." (Masculin) The feature currently only works on browsers like Chrome and Firefox, and not on mobile. But eventually, this feature is also expected to be available in iOS and Android apps. Google says it plans to expand the functionality to more languages and other platforms (such as the Google Translate app) soon.

From a historical perspective, Google Translate provides only one translation for the question, although that translation may have a feminine or masculine form. So when the model produces one translation, it is inadvertently replicating the already manifest gender bias. For example, she would trick a guy into something like "strong" or "doctor," and feminine for something else, like "nurse" or "pretty". Most likely every language has gender-biased sides, including English, because the type of society in the reality of life is more represented by men and women (Setiyaningsih, 2015). The relations between men and women in society, although they need each other, sometimes also compete for positions in the political, cultural, economic, and social fields, resulting in what is called gender bias.

This study will discuss gender bias in terms of language especially from Indonesian into English translation by using Google Translate. Most likely every language has gender-biased sides, including English, because the type of society in the reality of life is more represented by men and women.

METHODOLOGY

The design of this research is a qualitative case study. Creswell (2007, p. 73) states that case study research is a qualitative method in which the researcher investigates a bounded system (a case) or multiple bounded systems (cases) over time by systematic, in-depth data collection incorporating multiple knowledge sources such as observation, interviews, audiovisual materials, documents, and reports case description. A case study approach is social research to investigate, understand, and research a problem that has occurred. The research is carried out by collecting various information that will be processed and solve so that the problem will be resolved.

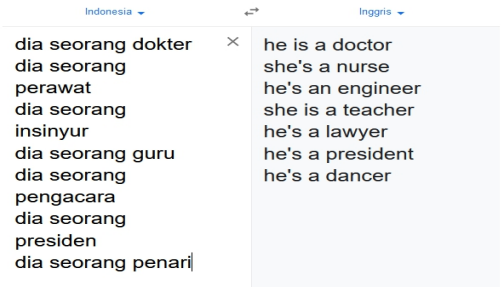
The technique of collecting data in this research use document analysis. The document used here the translation result from Indonesian into English. The choice of the Google Translate application is because Google Translate is considered very helpful for people who want to find expressions or words from other languages practically. The technique of analyzing data in this research is writing the example of sentences to be translated from Indonesian into English. The researcher analyzes the translations' results based on the researcher's perspective in the descriptive form.

FINDINGS AND DISCUSSION

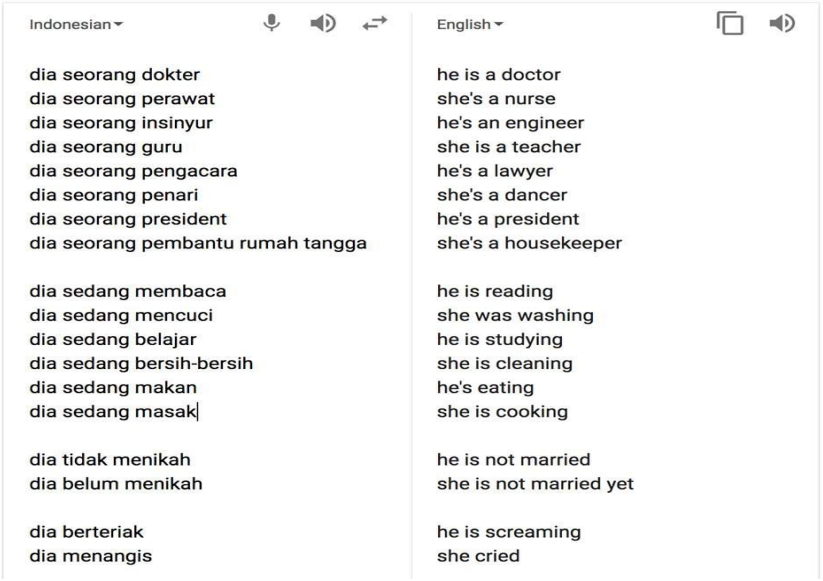
Findings

Below is an example of gender bias in Google translation from Indonesian into English.

Table 1.



Translation's Result from Indonesian into English



The example above shows that the two substitutes for the person are more neutral than the English language which uses the word 'she' for women and 'he' for boys. To explain these substitutes, the researcher conducted experiments with sentences containing someone's work. 'He's a doctor' and 'She's a nurse' are among the examples. However, google translate reads this in a different way. If we observe at first there is nothing wrong with the Indonesian into English translation. What needs to be researched is the personal pronouns in English and their occupations. The sentence 'he is a doctor' is replaced by 'he is a doctor'. Meanwhile, 'she is a nurse' was replaced by 'she is a nurse'.

The example above contains words in Indonesian which are translated into English. Words that were originally gender-neutral in Indonesian, become gender biased once translated into English. A few simple sentences in Indonesian that are put into the Google translation box such as he's a president; she's a nurse, or he's a dancer. The sentences were translated by Google Translate into English respectively with the result: He's a president; she's a nurse; she's a dancer, etc. Google translate as well as sexist, like humans, can conclude that the word "cry" is closer to women, or the medical profession is closer to men.

Likewise, jobs such as presidents, lawyers, and engineers are identified as male jobs by google

translate. Then women are identified with jobs such as teachers, nurses, and domestic servants. Jobs such as cleaning the house, washing, and cooking are often identified by women's jobs as well. Then, activities such as eating, reading, and studying are identified with men's jobs. The unequal differences between men and women translated into google translate cause the system to be considered biased and sexist towards gender. Whereas in fact, nowadays all genders can have various activities and jobs. Both men and women can become doctors. Men and women can become domestic helpers.

Indonesian is also a gender-neutral language. When google translates to change into English, the sentence becomes gendered. The Indonesian language in this case seems to have been saved from being sexist because it does not associate a particular profession or activity with any gender. Unlike English, which adjusts personal pronouns based on gender.

Indonesian does not have pronouns, ownership words, and gender-based objects such as “she” and “he”; "Her" and "his"; and "her" and "him" as in English. Indonesian also does not have nouns that have the concept of "feminine" and "masculine" in the noun like that of European languages (French and German). Thus, the pattern seen in translation shows gender bias in translation technology.

Google Translate itself doesn't release how the algorithm works. However, so far it is known that the system uses the Statistical Machine Translation (SMT) algorithm. According to Carlos Alberto Gomez Grajales, an expert in applied mathematics, analysis, and statistics - Google Translate is not associated with any particular translator or linguist in its grammatical settings. In this case, it means, Google Translate doesn't understand anything about language. The way Google Translate works is by collecting a database of millions of documents translated by people.

The algorithm is designed to see patterns from a collection of existing translation results, to find the most suitable translation for the word the user has entered. The assumption is, it could be that the word or sentence we want has been previously translated into millions of translated documents managed by Google. So, we can imagine how many translations say "cleaning" is the work of women, and engineers are called and are the profession of men?. "Indeed, Google uses Machine Learning and its algorithm learns bias from the public. So the data used by Google is biased."

Google translate reveals the gender bias that lives in our culture; such as unequal access to employment of workers between men and women; or social constructions that make women often associated with negative connotations such as being unhappy, lazy, and always looking for a husband even though it looks hopeless.

Over the years, researchers and application developers have tried to develop algorithms of artificial intelligence to resemble humans. Usually, the algorithm is adapted based on the behavior and data that is mostly done and found. Maybe this is what happened to the Google Translate algorithm system. In each translation, Google includes an algorithm system based on the frequency and most data found. For example, data on the engineering profession are predominantly carried out by men. While data on the nursing profession is mostly done by women. So automatically, Google will translate engineer work as a male profession while nurses are a female job.

Discussion

The Problem of Gender Bias in Google Translate

When translating Indonesian sentences into English, it will show that the translation results tend to be gender-biased. The English language recognizes the pronoun system for "he" he is male, and "she" is female. Even Indonesian does not recognize the “she” or “he”, as they all mean “dia” or “ia” which refers to the gender of male or female.

This can happen because Google Translate uses a translation algorithm system based on the most frequently performed searches. So, if in Google's database 1000 users are using the word engineer and most of them are male, Google

Translate will interpret it as male (with the word he). This rule also applies to the word nurse which refers to women (or the word she). This also makes Google Translate appear to highlight the biases that are present in our culture, including the narrow working space for women or some conditions that are considered to describe the situation of women, such as the words unhappy, lazy, and hopeless. Obviously, from this phenomenon, technology appears in the absence of the neutral attitude that has been predicted.

English does not recognize third-person pronouns with gender. And when translated by Google, the words also turn gendered and sexist. Police, mechanics, and peasants were associated with men. Meanwhile, nurses, nannies, and secretaries are associated with women.

Indonesian, which also does not recognize gender pronouns, experiences the same thing. Police, craftsmen, and entrepreneurs are associated with men. Meanwhile, nurses and caregivers are associated with women. The words “jealous” and “married” are also associated with men, while “crying” and “divorced” are associated with women.

Why does this happen? because Google Translate adopts an algorithm based on the translation that has been recorded. So, if the database contains 1,000 uses of the word "mechanic" and it is mostly used on men, then that artificial intelligence will translate mechanics as male. That means artificial intelligence machines become gender biased by studying human history and behavior. The scientists found that "the machines can perform semantic bias just like humans."

Google Translate is not as perfect as translations produced by humans, considering that it is only a software that does not fully understand the context in a sentence. So, what Google Translate means is purely based on the program that is embedded in itself. However, since its launch until now, the quality of Google Translate's translation has improved.

Previously, Google translated one translation for one input regardless of whether the word entered was masculine or feminine. This approach continues to produce gender-biased meanings, where translations for work-related phrases, for example, "she's a nurse" will always result in the phrase "she is a nurse", or "she's a doctor" to "he is a doctor". A nurse is not always a woman and a doctor is not always a man. Now, Google is changing its treatment specifically for general phrases related to gender. Instead of just one, two translations will appear, each representing the gender of men and women. For example, the translation for "he is a doctor" would be "she is a doctor" and another "he is a doctor.

In the translation column, Google has also added the label “Translations are gender specific” and a *Learn More* link to help answer questions from users who may be confused about the results of these two translations. Google plans to expand the translation features with masculine and feminine genders to cover more languages. It is still unclear which language is referred to.

Google Translate is not always accurate, especially when translating from English to other languages. That is where Google Translate tends to go astray. The problem is that many languages have gender-based words, whereas English does not. But some words, like profession or occupation, can be masculine or feminine depending on the subject of the sentence, by assigning gender to certain adjectives and words that describe them.

Google Translate is trained on hundreds of millions of pre-translated words and phrases from the Internet. This means that if one variation of a word appears, the program will prefer the more general translation. To combat this, Google is rolling out an update that will provide masculine and feminine translations for these neutral words. Google is considered sexist because it automatically translates sentences into masculine pronouns. In the past, when translating words, Google algorithms had to pick either masculine or feminine, which often happens to be more masculine. The problem occurs when translating

into a language where words also have their respective genders such as "strong" turning masculine and "beautiful" turning into the feminine. According to Google, the weaknesses were learned from existing examples and translated online. After realizing and fixing this problem, the Tech Giant declared its plans to expand the translation of gender-specific to other languages as well as launch it on iOS and Android.

Equality in gender and race has been very difficult to achieve in machine technology situations because these systems are trained on existing content, and are not demographically representative. Google decided to make changes. It's a good thing to see a company this size working to eliminate gender bias in its technology. It is important to adapt and build technology that can better serve humans. What may seem like small changes to everyday life are big steps towards gender equality. The way people speak their respective languages is one of the strongest ways of gender discrimination, sex discrimination, or gender bias (Shaw, 1999, p. 12), which is related to the action or policies that deny opportunities to an individual based on gender.

Solution for Gender Bias in Google Translate

Google Translate is currently working on improvements and updates for gender issues. Google is taking steps to limit gender bias in translation. Google Translate is not always accurate, especially when translating from English to other languages. Part of the problem is that many languages have gender-based words, whereas English does not. But some words, like profession or occupation, can be masculine or feminine depending on the subject of the sentence, by assigning gender to specific adjectives and words that describe them.

That's where Google Translate tends to go astray. Google Translate is trained on hundreds of millions of pre-translated words and phrases from the Internet. This means that if one variation of a word appears more than another, the program will prefer the more general translation. To combat this, Google is rolling out an update that will provide both masculine and feminine translations for these neutral words. The initial rollout includes Dutch, French, Italian, Portuguese, Spanish, and Turkish, but the next plan is to add this feature to more languages over time. Google is also looking for ways to use non-binary languages in a translation service that will be released at a later release.

Google returns to the Google Translate feature. This time, Google added gender-specific translations in several languages. This update provides translated masculine and feminine forms for words that are gender-neutral. By using artificial intelligence (AI) technology, Google trains AI-based translation machines to be fair in interpreting words or sentences with neutral subjects. To translate single words from English to French, Italian, Portuguese, and Spanish, gender-specific translations are only available. Meanwhile, translation from Turkish to English is the only language pair that provides the translation in the form of a sentence. This translation feature is currently only available on browsers like Chrome and Firefox. However, a similar feature will also be extended to the Google Translate app service on Android and iOS. Google says this feature will also work to bring support to more languages.

CONCLUSION

Google Translate is trained on hundreds of millions of pre-translated words and phrases from the Internet. This means that if one variation of a word appears, the program will prefer the more general translation. To combat this, Google is rolling out an update that will provide masculine and feminine translations for these neutral words. Equality in gender and race has been very difficult to achieve in machine technology situations because these systems are trained on existing content, and are not demographically representative. Google decided to make changes. It's a good thing to see a company this size working to eliminate gender bias in its technology. It is important to adapt and build technology that can better serve humans. What may seem like

small changes to everyday life are big steps towards gender equality. The way people speak their respective languages is one of the strongest ways of gender discrimination.

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